

1. A bleaching composition comprising an organic catalyst compound in conjunction with or without a peroxygen source, and an anionic surfactant such that decomposition of said organic catalyst compound is resisted.

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2. The composition according to Claim 1 wherein the anionic surfactant is selected from the group consisting of: linear alkylbenzene sulfonates, alpha olefin sulfonates, paraffin sulfonates, alkyl ester sulfonates, alkyl sulfates, alkyl alkoxy sulfates, alkyl sulfonates, alkyl alkoxy carboxylates, alkyl alkoxylation sulfates, sarcosinates, taurinates, and mixtures thereof.

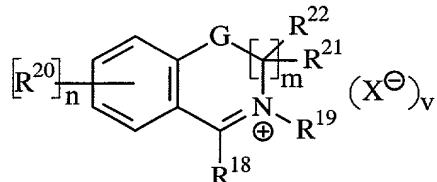
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3. The composition according to Claim 1 wherein said anionic surfactant is present in said composition at a level of from about 1% to about 40%.

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4. The composition according to Claim 1 wherein said organic catalyst compound is a cationic organic catalyst compound.

5. The composition according to Claim 4 wherein said cationic organic catalyst compound has the formula:



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[XII]

where the net charge is from about +3 to about -3; m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R²⁰ is independently selected from a

25 substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R²⁰ substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R¹⁸ may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R¹⁹ may be a substituted or unsubstituted, saturated or unsaturated, radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl and heterocyclic ring; G is

selected from the group consisting of: (1) -O- ; (2) -N(R²³)-; and (3) -N(R²³R²⁴)-; R²¹ - R²⁴ are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, linear or branched C₁ - C₁₂ alkyls, alkynes, alkoxyis, aryls, alkaryls, aralkyls, cycloalkyls and heterocyclic rings; provided that any of R¹⁸, R¹⁹, R²⁰, R²¹ - R²⁴ may be joined together with any other of R¹⁸, R¹⁹, R²⁰, R²¹ - R²⁴ to form part of a common ring; any geminal R²¹ - R²² may combine to form a carbonyl; any vicinal R²¹ - R²⁴ may join to form unsaturation; and wherein any one group of substituents R²¹ - R²⁴ may combine to form a substituted or unsubstituted fused unsaturated moiety; X⁻ is a suitable charge-balancing counterion; and v is an integer from 1 to 3.

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6. The bleaching composition as claimed in claim 1 wherein said organic catalyst compound comprises from about 0.001% to about 10% by weight of said composition, and said peroxygen source, when present, comprises from about 0.01% to about 60% by weight of said composition.

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7. The bleaching composition as claimed in claim 1 wherein said peroxygen source, when present, is selected from the group consisting of:

(a) preformed peracid compounds selected from the group consisting of percarboxylic acids and salts, percarbonic acids and salts, perimidic acids and salts, peroxyomonosulfuric acids and salts, and mixtures thereof;

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(b) hydrogen peroxide sources selected from the group consisting of perborate compounds, percarbonate compounds, perphosphate compounds and mixtures thereof; and a bleach activator.

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8. The bleaching composition according to Claim 1 wherein said bleaching composition further comprises one or more of the following detergent components selected from the group consisting of: other surfactants, solvents, buffers, enzymes, soil release agents, clay soil removal agents, dispersing agents, brighteners, suds suppressors, fabric softeners, suds boosters, enzyme stabilizers, builders, chelants, other bleaching agents, dyes, dye transfer inhibiting agents, perfumes and mixtures thereof.

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9. The bleaching composition according to Claim 8 wherein said bleaching composition further comprises a chelating agent.

10. The bleaching composition according to Claim 8 wherein said bleaching composition further comprises other bleaching agents selected from the group consisting of perborates, percarbonates, perphosphates and mixtures thereof.

5 11. The bleaching composition according to Claim 10 wherein said bleaching composition further comprises a bleach activator.

12. The bleaching composition according to Claim 11 wherein said bleach activator is selected from the group consisting of hydrophobic bleach activators.

10 13. The bleaching composition according to Claim 11 wherein said bleach activator is selected from the group consisting of tetraacetyl ethylene diamine (TAED), benzoylcapro lactam (BzCL), 4-nitrobenzoylcapro lactam, 3-chlorobenzoylcapro lactam, benzoyloxybenzenesulphonate (BOBS), nonanoyloxybenzenesulphonate (NOBS), phenyl benzoate (PhBz), decanoyloxybenzenesulphonate (C₁₀-OBS), benzoylvalerolactam (BZVL), octanoyloxybenzenesulphonate (C₈-OBS), perhydrolyzable esters, 4-[N-(nonaoyl) amino hexanoyloxy]-benzene sulfonate sodium salt (NACA-OBS), lauryloxybenzenesulphonate (LOBS or C₁₂-OBS), 10-undecenoyloxybenzenesulfonate (UDOBS or C₁₁-OBS with unsaturation in the 10 position), decanoyloxybenzoic acid (DOBA) and mixtures thereof.

20 14. The bleaching composition according to Claim 8 wherein said bleaching composition comprises an enzyme.

25 15. The bleaching composition according to Claim 14 wherein said enzyme is selected from the group consisting of cellulases, lipases, amylases, phospholipases, proteases, peroxidases and mixtures thereof.

16. A method for laundering a fabric in need of cleaning, said method comprises contacting said fabric with a laundry solution having a bleaching composition according to claim 1.

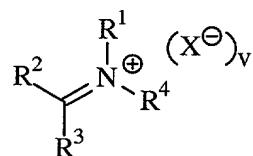
30 17. A laundry additive product comprising an organic catalyst compound, in conjunction with or without a peroxygen source, and an anionic surfactant.

18. The laundry additive product according to Claim 17 wherein said laundry additive product is in a dosage form selected from the group consisting of a pill, tablet, caplet, gelcap or other single dosage form.

5 19. The laundry additive product according to Claim 18 wherein said laundry additive product further includes a suitable carrier.

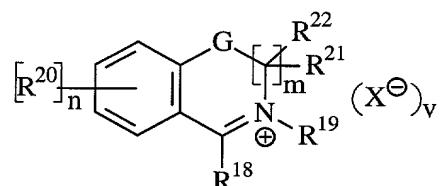
20. A bleaching composition comprising an organic catalyst compound in conjunction with or
without a peroxygen source, wherein said organic catalyst compound is selected from the group
10 consisting of:

(a) aryliminium cations and aryliminium polyions having a net charge of from about +3 to about -3, are represented by the formula [I]:



15 [I]

where $\text{R}^1 - \text{R}^4$ are defined such that the aryliminium cations and aryliminium polyions having a net charge of from about +3 to about -3, are represented by the formula [XI]:

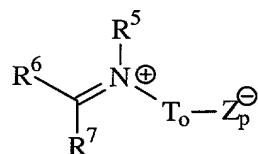


20 [XI]

where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R^{20} is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, carboxylic and carboalkoxy radicals, and any two vicinal R^{20} substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring, provided that when R^{20} is selected from the aryl radical, the aryl radical is not phenyl; R^{18} may be a substituted or unsubstituted radical selected from the group consisting of H,

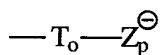
alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R¹⁹ is a non-linear radical selected from the group consisting of a substituted or branched radical selected from the group consisting of alkyl, cycloalkyl, alkaryl, aryl (provided that this aryl group is not phenyl), aralkyl and non-aromatic heterocyclic ring, provided that when R¹⁹ is isopropyl R²⁰ is not ArCOCH₃; G is selected from the group consisting of: (1) -O- ; (2) -N(R²³)-; and (3) -N(R²³R²⁴)-; R²¹ - R²⁴ are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, linear or branched C₁-C₁₂ alkyls, alkynes, alkoxy, aryls, alkaryls, aralkyls, cycloalkyls and heterocyclic rings; provided that any of R¹⁸, R¹⁹, R²⁰, R²¹ - R²⁴ may be joined together with any other of R¹⁸, R¹⁹, R²⁰, R²¹ - R²⁴ to form part of a common ring; any geminal R²¹ - R²² may combine to form a carbonyl; any vicinal R²¹ - R²⁴ may join to form unsaturation; and wherein any one group of substituents R²¹ - R²⁴ may combine to form a substituted or unsubstituted fused unsaturated moiety; X⁻ is a suitable charge-balancing counterion; and v is an integer from 1 to 3.

(b) aryliminium zwitterion bleach boosting compounds having a net charge of from about +3 to about -3, wherein said zwitterion bleach boosting compounds have the formula:

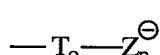


[II]

where R⁵ - R⁷ are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic, and carboalkoxy radicals; the radical represented by the formula:

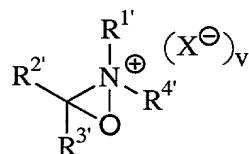


where Z_p^- is covalently bonded to T_o , and Z_p^- is selected from the group consisting of $-CO_2^-$, $-SO_3^-$, $-OSO_3^-$, $-SO_2^-$ and $-OSO_2^-$ and p is either 1 or 2; T_o is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl, and heterocyclic ring; wherein T_o and Z_p^- are selected such that



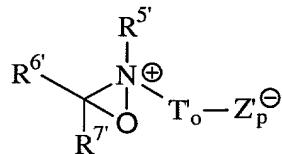
is a non-linear radical; provided that when R⁶ or R⁷ are joined to R⁵ by an unsubstituted phenethyl group, then $\text{---T}_o\text{---Z}_p^\ominus$ is not $\text{CH}_2\text{CH}(\text{OSO}_3^-)\text{R}^T$ wherein R^T is geminal dimethyl substituted alkyl, unsubstituted alkyl and phenyl radicals;

- 5 (c) bleaching species selected from the group consisting of oxaziridinium cation bleaching species, oxaziridinium polyion bleaching species having a net charge of from about +3 to about -3 and mixtures thereof, said cation and polyion bleaching species have the formula:

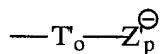


- 10 where R^{1'} - R^{3'} are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R^{4'} is a non-linear radical selected from the group consisting of substituted or branched alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals,
 15 with the proviso that R^{4'} is not t-butyl or phenyl when R^{2'} or R^{3'} is phenyl; X⁻, when present, is a suitable charge-balancing counterion; v is an integer from 1 to 3;

- (d) oxaziridinium zwitterion bleaching species having a net charge of from about +3 to about -3 and mixtures thereof, said zwitterion bleaching species have the formula:

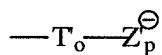


- 20 where R^{5'} - R^{7'} are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this
 25 formula is the radical represented by the formula:



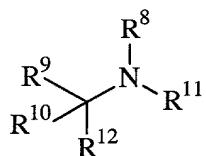
where Z'_p^- is covalently bonded to T'_o , and Z'_p^- is selected from the group consisting of $-CO_2^-$, $-SO_3^-$, $-OSO_3^-$, $-SO_2^-$ and $-OSO_2^-$ and p is either 1, 2 or 3; T'_o is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring; wherein T'_o and Z'_p^- are selected such that

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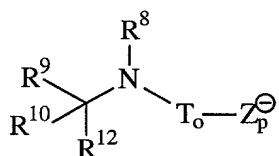


is a non-linear radical;

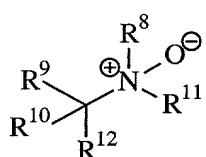
- (e) modified amines ([V], [VI]) and/or modified amine oxides ([VII]-[X]) having a net charge of from about +3 to about -3 and mixtures thereof, said modified amines and modified amine oxides have the formula:



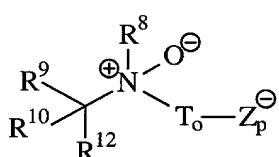
[V]



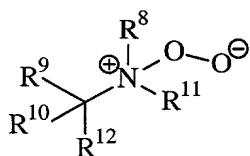
[VI]



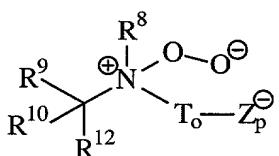
[VII]



[VIII]



[IX]



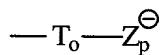
[X]

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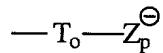
where R^9 - R^{10} are independently selected from substituted or unsubstituted radicals selected from the group consisting of H, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic, and carboalkoxy radicals and anionic and/or cationic charge carrying radicals; R^8 and R^{11} are non-linear radicals selected from the group consisting of substituted or branched alkyl, cycloalkyl, aryl, alkaryl, aralkyl, heterocyclic

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ring, silyl, nitro, halo, cyano, alkoxy, keto and carboalkoxy radicals and anionic and/or cationic charge carrying radicals; R¹² is a leaving group, the protonated form of which has a pK_a value (H₂O reference) that falls within the following range: 37 > pK_a > -2; with the proviso that any R⁸ - R¹², when present, may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; and the radical represented by the formula:



where Z_p⁻ is covalently bonded to T_o, and Z_p⁻ is selected from the group consisting of
10 -CO₂⁻, -SO₃⁻, -OSO₃⁻, -SO₂⁻ and -OSO₂⁻ and p is either 1, 2 or 3; T_o is selected from the group consisting of substituted or unsubstituted, saturated or unsaturated alkyl, cycloalkyl, aryl, alkaryl, aralkyl and heterocyclic ring; wherein T_o and Z_p⁻ are selected such that



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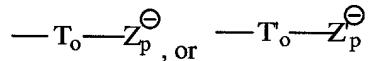
is a non-linear radical; and

(f) mixtures thereof.

21. The bleaching composition according to Claim 20 wherein R¹² is a leaving group, wherein the protonated form of said leaving group has a pK_a value (H₂O reference) within the range 23 > pK_a > 3.

22. The bleaching composition according to Claim 20 wherein said R^{1'}, R^{4'}, R⁵, R^{5'}, R⁸, R¹¹,

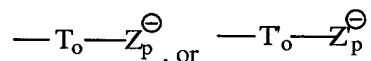
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when present, includes branching at one or more of the following positions, when present, alpha, beta, gamma, delta and epsilon positions.

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23. The bleaching composition according to Claim 22 wherein said R^{1'}, R^{4'}, R⁵, R^{5'}, R⁸, R¹¹,

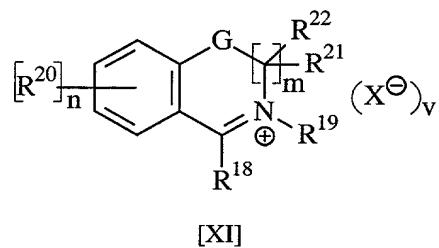


when present, includes branching at the beta position.

24. The bleaching composition according to Claim 20 wherein said modified amines and
5 modified amine oxides are selected from the group consisting of modified amines wherein R¹²,
the leaving group, is a radical selected from the group consisting of substituted or unsubstituted,
saturated or unsaturated hydroxy, perhydroxy, alkoxy and peralkoxy radicals.

25. The bleaching composition as claimed in claim 20 wherein said organic catalyst
10 compound is selected from the group consisting of the following:

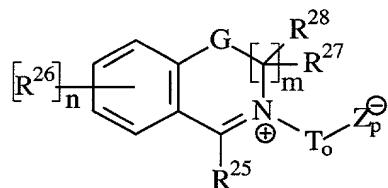
(a) aryliminium cation bleach boosting compounds or aryliminium polyion bleach
boosting compounds, having a net charge of from about +3 to about -3, and mixtures thereof,
wherein said cation and polyion bleach boosting compounds have the formula:



where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R²⁰ is independently selected from a substituted or unsubstituted radical selected
20 from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R²⁰ substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R¹⁸ may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R¹⁹ is a non-linear radical selected
25 from the group consisting of substituted or branched radical alkyl, cycloalkyl, alkaryl, aryl, aralkyl and heterocyclic ring; G is selected from the group consisting of: (1) -O- ; (2) -N(R²³)-; and (3) -N(R²³R²⁴)-; R²¹ - R²⁴ are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, linear or branched C₁-C₁₂ alkyls, alkynes, alkoxy, aryls, alkaryls, aralkyls, cycloalkyls and heterocyclic rings; provided that any of R¹⁸, R¹⁹, R²⁰, R²¹ - R²⁴
30 may be joined together with any other of R¹⁸, R¹⁹, R²⁰, R²¹ - R²⁴ to form part of a common ring; any geminal R²¹ - R²² may combine to form a carbonyl; any vicinal R²¹ - R²⁴

may join to form unsaturation; and wherein any one group of substituents R²¹ - R²⁴ may combine to form a substituted or unsubstituted fused unsaturated moiety;

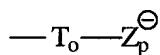
(b) aryliminium zwitterions having the formula:



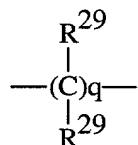
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[XII]

where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R²⁶ is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R²⁶ substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R²⁵ may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:



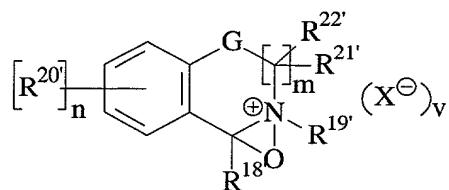
where Z_p⁻ is covalently bonded to T_o, and Z_p⁻ is selected from the group consisting of -CO₂⁻, -SO₃⁻, -OSO₃⁻, -SO₂⁻ and -OSO₂⁻ and p is either 1, 2 or 3; T_o is selected from the group consisting of:



wherein q is an integer from 1 to 8; R²⁹ is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl and amide groups, provided that all R²⁹ groups are not independently selected to be H; G is selected from the group consisting of: (1) -O- ; (2) -N(R³⁰)-; and (3) -N(R³⁰R³¹)-; R²⁷, R²⁸, R³⁰ and R³¹ are substituted or unsubstituted radicals independently selected from the group

consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkynes, heterocyclic ring, alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R²⁵, R²⁶, R²⁷, R²⁸, R³⁰ and R³¹ may be joined together with any other of R²⁵, R²⁶, R²⁷, R²⁸, R³⁰ and R³¹ to form part of a common ring; any geminal R²⁷ - R²⁸ may combine to form a carbonyl; any vicinal R²⁷ - R³¹ may join to form unsaturation; and wherein any one group of substituents R²⁷ - R³¹ may combine to form a substituted or unsubstituted fused unsaturated moiety;

5 (c) oxaziridinium cations and oxaziridinium polyions having a net charge of from about +3 to about -3, and having the formula:



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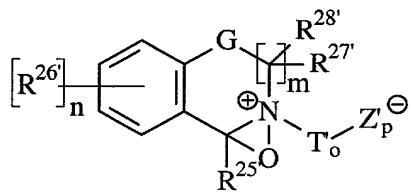
[XIII]

wherein m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R²⁰' is independently selected from a substituted or unsubstituted radical selected

15 from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R²⁰' substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R¹⁸' may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, 20 sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R¹⁹' may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl and heterocyclic ring. G is selected from the group consisting of: (1) -O- ; (2) -N(R²³)-; and (3) -N(R²³R²⁴)-; R²¹' - R²⁴' are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, linear or branched C₁-C₁₂ alkyls, alkynes, 25 alkoxy, aryls, alkaryl, aralkyls, cycloalkyls and heterocyclic rings; provided that any of R¹⁸', R¹⁹', R²¹' - R²⁴' may be joined together with any other of R¹⁸', R¹⁹', R²¹' - R²⁴' to form part of a common ring; any geminal R²¹' - R²²' may combine to form a carbonyl; any vicinal R²¹' - R²⁴' may join to form unsaturation; and wherein any one group of substituents R²¹' - R²⁴' may combine to form a substituted or unsubstituted fused unsaturated moiety; and wherein any one 30 group of substituents R²¹' - R²⁴' may combine to form a substituted or unsubstituted fused unsaturated moiety;

(d) oxaziridinium zwitterions having a net charge of from about +3 to about -

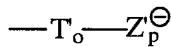
3 and having the formula:



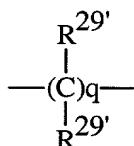
[XIV]

- 5 wherein m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R^{26'} is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R^{26'} substituents may combine to form a fused aryl, fused carbocyclic or
10 fused heterocyclic ring; R^{25'} may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; also present in this formula is the radical represented by the formula:

15



where Z'_p^- is covalently bonded to T'_o, and Z'_p^- is selected from the group consisting of -CO₂^-, -SO₃^-, -OSO₃^-, -SO₂^- and -OSO₂^-, and p is either 1 or 2; T'_o is selected from the group consisting of:

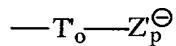


20

- wherein q is an integer from 1 to 8; R^{29'} is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl and amide groups, provided that all R^{29'} groups are not independently selected to be H; G is selected from the group consisting of: (1) -O- ; (2) -N(R^{30')}-; and (3) -N(R^{30'}R^{31')}-; R^{27'}, R^{28'}, R^{30'} and R^{31'} are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkynes, heterocyclic ring, alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R^{25'}, R^{26'}, R^{27'}, R^{28'}, R^{30'} and R^{31'} may be joined together with any other of R^{25'}, R^{26'}, R^{27'}, R^{28'}, R^{30'} and

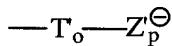
R^{31}' to form part of a common ring; any geminal R^{27}' - R^{28}' may combine to form a carbonyl; any vicinal R^{27}' - R^{31}' may join to form unsaturation; and wherein any one group of substituents R^{27}' - R^{31}' may combine to form a substituted or unsubstituted fused unsaturated moiety; provided that the radical represented by the formula:

5



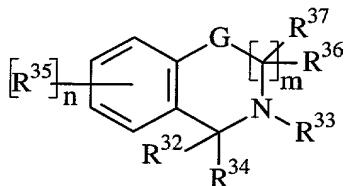
is a non-linear radical; and further provided that the radical represented by the formula:

10

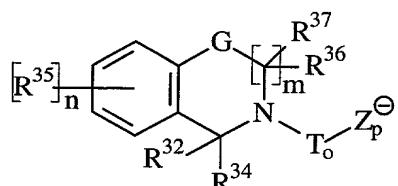


is not $\text{CH}_2\text{CH}(\text{OSO}_3^-)\text{R}^{41}$ wherein R^{41} is selected from the group consisting of geminal dimethyl substituted alkyl, unsubstituted alkyl and phenyl;

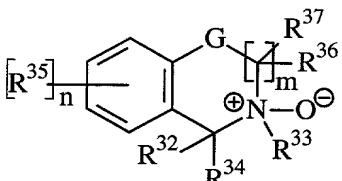
(e) modified amines (XV, XVI) and/or modified amine oxides (XVII, XVIII, XIX, 15 XX) and mixtures thereof, having the formula:



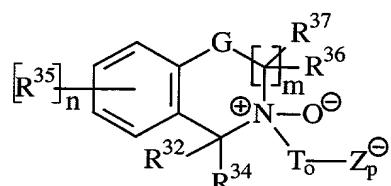
[XV]



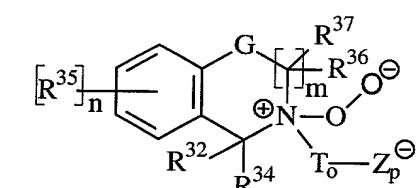
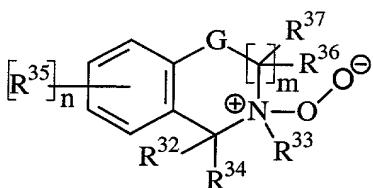
[XVI]



[XVII]



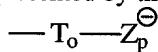
[XVIII]



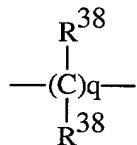
[XIX]

[XX]

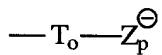
where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R³⁵ is independently selected from a substituted or unsubstituted radical selected
 5 from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R³⁵ substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R³² may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano,
 10 sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R³³ may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring and a radical represented by the formula:



where Z_p⁻ is covalently bonded to T_o, and Z_p⁻ is selected from the group consisting of
 15 -CO₂⁻, -SO₃⁻, -OSO₃⁻, -SO₂⁻ and -OSO₂⁻, and p is either 1, 2 or 3; T_o is selected from the group consisting of:



wherein q is an integer from 1 to 8; R³⁸ is independently selected from substituted or
 20 unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl and amide groups, provided that all R³⁸ groups are not independently selected to be H; G is selected from the group consisting of: (1) -O-; (2) -N(R³⁹)-; and (3) -N(R³⁹R⁴⁰)-; R³⁶, R³⁷, R³⁹ and R⁴⁰ are substituted or unsubstituted radicals independently selected from the group
 25 consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkynes, heterocyclic ring, alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R³², R³³, R³⁴, R³⁵, R³⁶, R³⁷, R³⁹ and R⁴⁰ may be joined together with any other of R³², R³³, R³⁴, R³⁵, R³⁶, R³⁷, R³⁹ and R⁴⁰ to form part of a common ring; any geminal R³⁶-R³⁷ may combine to form a carbonyl; any vicinal R³⁶, R³⁷, R³⁹ and R⁴⁰ may join to form unsaturation; and wherein any one
 30 group of substituents R³⁶, R³⁷, R³⁹ and R⁴⁰ may combine to form a substituted or unsubstituted fused unsaturated moiety; provided that the radical represented by the formula:

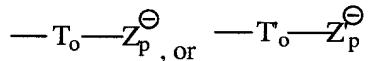


is a non-linear radical; and

f) mixtures thereof.

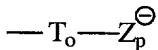
5

26. The bleaching composition according to Claim 25 wherein said R¹⁹, R^{19'}, R³³,



10 when present, includes branching at one or more of the following positions, when present, alpha, beta, gamma, delta and epsilon positions.

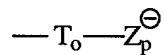
27. The bleaching composition as claimed in claim 25 wherein said organic catalyst compound is selected from the group consisting of: (1) aryliminium cations or polyions of the formula [XI] wherein R¹⁸ is H or methyl, and R¹⁹ is H or substituted or branched C₁ - C₁₄ alkyl or cycloalkyl; (2) oxaziridinium cations or polyions of the formula [XIII] wherein R^{18'} is H or methyl, and R^{19'} is H or substituted or branched C₁ - C₁₄ alkyl or cycloalkyl; (3) modified amines or amine oxides of the formula [XV], [XVII], [XIX] wherein R¹⁸ is H or methyl, and R¹⁹ is H or substituted or branched C₁ - C₁₄ alkyl or cycloalkyl; (4) aryliminium zwitterions of the formula [XII] wherein R²⁵ is H or methyl, and for the radical represented by the formula:



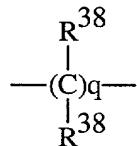
Z_p⁻ is -CO₂⁻, -SO₃⁻ or -OSO₃⁻, and p is 1 or 2.

25

28. The bleaching composition as claimed in claim 27 wherein said organic catalyst compound is selected from the group consisting of: (1) aryliminium cations or polyions of the formula [XI] wherein R¹⁸ is H or methyl, and R¹⁹ is substituted or branched C₁ - C₁₄ alkyl or cycloalkyl; (2) oxaziridinium cations or polyions of the formula [XIII] wherein R^{18'} is H or methyl, and R^{19'} is substituted or branched C₁ - C₁₄ alkyl or cycloalkyl; (3) modified amines or amine oxides of the formula [XV], [XVII], [XIX] wherein R¹⁸ is H or methyl, and R¹⁹ is substituted or branched C₁ - C₁₄ alkyl or cycloalkyl; (4) aryliminium zwitterions of the formula [XII] wherein R²⁵ is H or methyl, and for the radical represented by the formula:



Z^\ominus is $-\text{CO}_2^\ominus$, $-\text{SO}_3^\ominus$ or $-\text{OSO}_3^\ominus$, p is 1 and T_o is selected from the group consisting of:

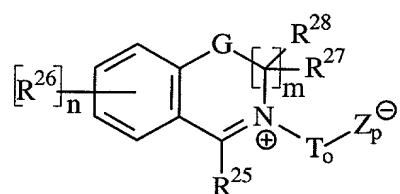


- 5 wherein q is an integer from 2 to 4, and R^{38} is independently selected from the group consisting of H and linear or branched C₁-C₁₈ substituted or unsubstituted alkyl, cycloalkyl or aryl; provided that at least one R^{38} is not H.
- 10 29. The bleaching composition as claimed in claim 20 wherein said organic catalyst compound comprises from about 0.001% to about 10% by weight of said composition, and said peroxygen source, when present, comprises from about 0.01% to about 60% by weight of said composition.
- 15 30. The bleaching composition as claimed in claim 20 wherein said peroxygen source, when present, is selected from the group consisting of:
- (a) preformed peracid compounds selected from the group consisting of percarboxylic acids and salts, percarbonic acids and salts, perimidic acids and salts, peroxyomonosulfuric acids and salts, and mixtures thereof;
- 20 (b) hydrogen peroxide sources selected from the group consisting of perborate compounds, percarbonate compounds, perphosphate compounds and mixtures thereof; and a bleach activator.
- 25 31. The bleaching composition as claimed in claim 20 wherein said bleaching composition further comprises a surfactant.
32. The bleaching composition as claimed in claim 31 wherein said surfactant is an anionic surfactant.
- 30 33. The bleaching composition as claimed in claim 20 wherein said bleaching composition further comprises an enzyme.

34. The bleaching composition as claimed in claim 20 wherein said bleaching composition further comprises a chelating agent.

35. A laundry organic catalyst compound selected from the group consisting of

5 (a) aryliminium zwitterions having the formula:



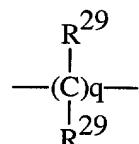
XII

where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R²⁶ is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R²⁶ substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R²⁵ may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; the radical represented by the formula:

— T_o — Z_p^Θ

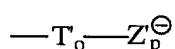
where Z_p^- is covalently bonded to T_o , and Z_p^- is selected from the group consisting of $-CO_2^-$, $-SO_3^-$, $-OSO_3^-$, $-SO_2^-$ and $-OSO_2^-$ and p is either 1, 2 or 3; T_o is selected from the group consisting of:

25



wherein q is an integer from 1 to 8; R²⁹ is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl,

and amide groups, provided that all R²⁹ groups are not independently selected to be H; G is selected from the group consisting of: (1) -O- ; (2) -N(R³⁰)-; and (3) -N(R³⁰R³¹)-; R²⁷, R²⁸, R³⁰ and R³¹ are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylenes, heterocyclic ring, 5 alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R²⁵, R²⁶, R²⁷, R²⁸, R³⁰ and R³¹ may be joined together with any other of R²⁵, R²⁶, R²⁷, R²⁸, R³⁰ and R³¹ to form part of a common ring; any geminal R²⁷ - R²⁸ may combine to form a carbonyl; any vicinal R²⁷ - R³¹ may join to form unsaturation; and wherein any one group of substituents R²⁷ - R³¹ may combine to form a substituted or unsubstituted fused unsaturated moiety; and provided that the 10 radical represented by the formula:

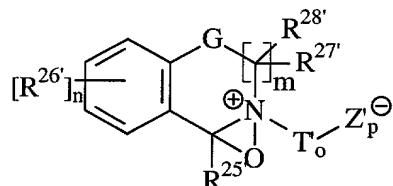


is a non-linear radical; and further provided that the radical represented by the formula:



is not CH₂CH(OSO₃⁻)R⁴¹ wherein R⁴¹ is selected from the group consisting of geminal dimethyl substituted alkyl, unsubstituted alkyl and phenyl;

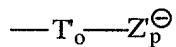
20 (b) oxaziridinium zwitterions having the formula:



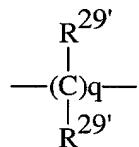
[XIV]

wherein m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 25 to 4; and each R^{26'} is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R^{26'} substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R^{25'} may be a substituted or unsubstituted radical selected from the group 30 consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano,

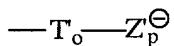
sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; the radical represented by the formula:



- 5 where Z'_p is covalently bonded to T'_o , and Z'_p is selected from the group consisting of -CO_2^- , -SO_3^- , -OSO_3^- , -SO_2^- and -OSO_2^- , and p is either 1 or 2; T'_o is selected from the group consisting of:

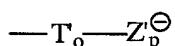


- 10 wherein q is an integer from 1 to 8; $R^{29'}$ is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl and amide groups, provided that all $R^{29'}$ groups are not independently selected to be H; G is selected from the group consisting of: (1) -O- ; (2) $\text{-N}(R^{30'})-$; and (3) $\text{-N}(R^{30'}R^{31'})-$; $R^{27'}, R^{28'}, R^{30'}$ and $R^{31'}$ are substituted or unsubstituted radicals independently selected from the group 15 consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkynes, heterocyclic ring, alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of $R^{25'}, R^{26'}, R^{27'}, R^{28'}, R^{30'}$ and $R^{31'}$ may be joined together with any other of $R^{25'}, R^{26'}, R^{27'}, R^{28'}, R^{30'}$ and $R^{31'}$ to form part of a common ring; any geminal $R^{27'}-R^{28'}$ may combine to form a carbonyl; any vicinal $R^{27'}-R^{31'}$ may join to form unsaturation; and wherein any one group of substituents $R^{27'}-R^{31'}$ may combine to form a substituted or unsubstituted fused unsaturated moiety; provided that 20 the radical represented by the formula:



is a non-linear radical; and further provided that the radical represented by the formula:

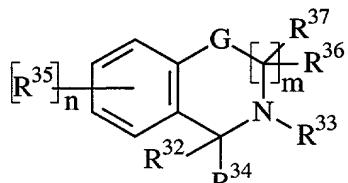
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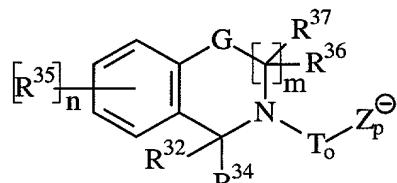
is not $\text{CH}_2\text{CH}(\text{OSO}_3^-)\text{R}^{41}$ wherein R^{41} is selected from the group consisting of geminal dimethyl substituted alkyl, unsubstituted alkyl and phenyl;

30

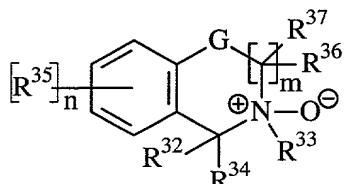
(c) modified amines (XV, XVI) and/or modified amine oxides (XVII, XVIII, XIX, XX) and mixtures thereof, having the formula:



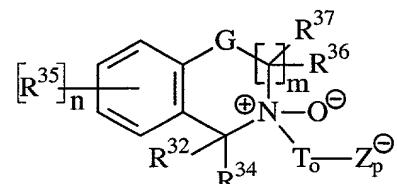
[XV]



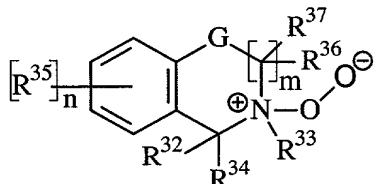
[XVI]



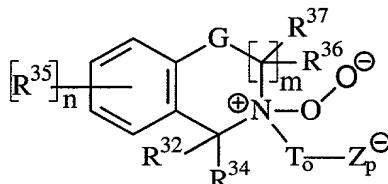
[XVII]



[XVIII]

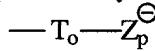


[XIX]



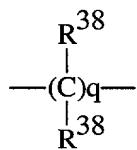
[XX]

- 10 where m is 1 to 3 when G is present and m is 1 to 4 when G is not present; n is an integer from 0 to 4; and each R³⁵ is independently selected from a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, aryl, fused aryl, heterocyclic ring, fused heterocyclic ring, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals, and any two vicinal R³⁵ substituents may combine to form a fused aryl, fused carbocyclic or fused heterocyclic ring; R³² may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring, silyl, nitro, halo, cyano, sulfonato, alkoxy, keto, carboxylic and carboalkoxy radicals; R³³ may be a substituted or unsubstituted radical selected from the group consisting of H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, heterocyclic ring and a radical represented by the formula:
- 15

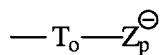


20

where Z_p⁻ is covalently bonded to T_o, and Z_p⁻ is selected from the group consisting of -CO₂⁻, -SO₃⁻, -OSO₃⁻, -SO₂⁻ and -OSO₂⁻, and p is either 1 or 2; T_o is selected from the group consisting of:



wherein q is an integer from 1 to 8; R³⁸ is independently selected from substituted or unsubstituted radicals selected from the group consisting of linear or branched H, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkylene, heterocyclic ring, alkoxy, arylcarbonyl, carboxyalkyl and amide groups, provided that all R³⁸ groups are not independently selected to be H; G is selected from the group consisting of: (1) -O- ; (2) -N(R³⁹)-; and (3) -N(R³⁹R⁴⁰)-; R³⁶, R³⁷, R³⁹ and R⁴⁰ are substituted or unsubstituted radicals independently selected from the group consisting of H, oxygen, alkyl, cycloalkyl, alkaryl, aryl, aralkyl, alkynes, heterocyclic ring, 10 alkoxy, arylcarbonyl groups, carboxyalkyl groups and amide groups; any of R³², R³³, R³⁴, R³⁵, R³⁶, R³⁷, R³⁹ and R⁴⁰ may be joined together with any other of R³², R³³, R³⁴, R³⁵, R³⁶, R³⁷, R³⁹ and R⁴⁰ to form part of a common ring; any geminal R³⁶- R³⁷ may combine to form a carbonyl; any vicinal R³⁶, R³⁷, R³⁹ and R⁴⁰ may join to form unsaturation; and wherein any one group of substituents R³⁶, R³⁷, R³⁹ and R⁴⁰ may combine to form a substituted or unsubstituted 15 fused unsaturated moiety; provided that the radical represented by the formula:



is a non-linear radical; and

20 d) mixtures thereof.

36. A method for laundering a fabric in need of laundering, said method comprises contacting said fabric with a laundry solution having a bleaching composition according to claim 20.

25 37. A laundry additive product comprising a bleaching composition according to claim 20.

38. A laundry additive product comprising a bleaching composition according to claim 25.

39. A laundry additive product comprising an organic catalyst compound according to claim

30 35.

40. The laundry additive product as claimed in claim 37 wherein said laundry additive product is in a dosage form selected from the group consisting of a pill, tablet, caplet, gelcap or other single dosage form.
- 5 41. The laundry additive product as claimed in claim 38 wherein said laundry additive product is in a dosage form selected from the group consisting of a pill, tablet, caplet, gelcap or other single dosage form.
- 10 42. The laundry additive product as claimed in claim 39 wherein said laundry additive product is in a dosage form selected from the group consisting of a pill, tablet, caplet, gelcap or other single dosage form.
- 15 43. The laundry additive product as claimed in claim 37 wherein said laundry additive further includes a suitable carrier.
- 20 44. The bleaching composition as claimed in claim 30 wherein said bleach activator is selected from the group consisting of: tetraacetyl ethylene diamine (TAED); benzoylcaptoprolactam (BzCL); 4-nitrobenzoylcaptoprolactam; 3-chlorobenzoylcaptoprolactam; benzoyloxybenzenesulphonate (BOBS); nonanoyloxybenzenesulphonate (NOBS); phenyl benzoate (PhBz); decanoyoxybenzenesulphonate (C_{10} -OBS); benzoylvalerolactam (BZVL); octanoyloxybenzenesulphonate (C_8 -OBS); perhydrolyzable esters; 4-[N-(nonanoyl) amino hexanoyloxy]-benzene sulfonate sodium salt (NACA-OBS); lauroyloxybenzenesulfonate (LOBS or C_{12} -OBS); 10-undecenyoxybenzenesulfonate (UDOBS); decanoyloxybenzoic acid (DOBA) and mixtures thereof.

25